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Sickle Cell and Recruit Training

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A Hospitalman at Branch Health Clinic Marine Corps Recruit Depot (MCRD) Parris Island's Recruit ve it drawn, verifying all the information is correct on the label. Among other tests, every recruit is screened for sickle cell disease. (U.S. Navy photo by Regena Kowitz/Released)

By Lt. Ian Lang, internist, Naval Hospital Beaufort

Parris Island in S.C. is home to one of two U.S. Marine Corps Recruiting Depots (MCRD), where approximately 20,000 Marine recruits train annually. While this training includes the familiar ropes, bars, and inclined walls, there is another, much more subtle obstacle to the training process: the recruit blood screen. Of the several tests which Marine recruits undergo, perhaps none is as complex an issue as the screen for sickle cell disease.

Sickle cell disease is a genetic hematologic disorder in which normal adult hemoglobin is substituted by hemoglobin S. Under certain circumstances, this form of the oxygen-carrying part of blood becomes viscous, resulting in damage to the body. Situations which may exacerbate this include low-oxygen conditions, such as those faced by pilots or service members at increased altitudes. Notably for the military, in 1968, four recruits with sickle cell trait (a carrier condition for sickle cell disease) died during training exercises at elevation. Following this, the U.S. Navy began testing all recruits and limiting the operational billets available to those who tested positive. This persisted until 1981, when a class action law suit was filed against the Air Force Academy, citing racial discrimination by declining to admit students with sickle cell trait, which is predominantly found in African Americans. In 1981, the Department of Defense mandated that restrictions be removed.

Today, to identify potential Marines at risk, all Marine recruits have a battery of blood testing done on day three of training by staff at Branch Health Clinic MCRD Parris Island. Results are sent to the Medical Dispositions Officer for review. If a recruit shows more than 45 percent hemoglobin S, a recruit can be separated from training for a condition that is disqualifying but is not a disability. All separated recruits receive specific counseling on the condition. As this is an inherited disorder, all separated recruits additionally receive genetic counseling. Recruits with hemoglobin S present at less than 45% are also counseled, but may

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return to training. This, too, is done with some level of debate. In the late 1970s and early 1980s, a study of military recruits found the risk of death in those with sickle cell trait to be 32 in 100,000, compared with one in 100,000 in other recruits. There is speculation, including unpublished data by the author, that the majority of these deaths could be prevented with adequate prevention of heat-related illness. With Parris Island average temperatures and humidity well above the United States averages, Marine recruits are given extensive education on proper hydration and avoidance of heat stroke.

It is important to understand the intricacies of military recruit sickle cell screening as we recognize World Sickle Cell Day. We have recently seen changes implemented in screening recommendations for numerous diseases, including cervical cancer and prostate cancer. The laboratory assessment of diseases is an ever-changing task, and the assessment of diseases in the military setting adds yet another layer to this issue. Ultimately, the military has the difficult but critical mission of screening personnel for potentially life-threatening conditions, but we also must ensure that those screening procedures serve our members well.

For those with sickle cell disease, it is important to remember that it is a life-long condition. There are several types of treatments, both acute and chronic. It is imperative that people with sickle cell disease stay hydrated, get their recommended vaccines to help avoid infection, and alert their physician right away for pain- especially chest pain- or fever.

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